



U.S. Department
of Transportation
**Federal Aviation
Administration**

Aviation Maintenance Alerts

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**ALERT NO. 255
OCTOBER 1999**

**Improve Reliability-
Interchange Service
Experience**

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**U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
WASHINGTON, DC 20590**

AVIATION MAINTENANCE ALERTS

The Aviation Maintenance Alerts provide a common communication channel through which the aviation community can economically interchange service experience and thereby cooperate in the improvement of aeronautical product durability, reliability, and safety. This publication is prepared from information submitted by those who operate and maintain civil aeronautical products. The contents include items that have been reported as significant, but which have not been evaluated fully by the time the material went to press. As additional facts such as cause and corrective action are identified, the data will be published in subsequent issues of the Alerts. This procedure gives Alerts' readers prompt notice of conditions reported via Malfunction or Defect Reports. Your comments and suggestions for improvement are always welcome. Send to: FAA; ATTN: Designee Standardization Branch (AFS-640); P.O. Box 25082; Oklahoma City, OK 73125-5029.

AIRPLANES

BEECH

**Beech; Model B58; Baron; Engine Failure;
ATA 2820**

The pilot reported that the left engine failed during an after-landing rollout.

A technician discovered a fuel leak in the area of the fuel-flow divider. He removed the excess fuel from the area and discovered the fuel leak was coming from the fuel-flow divider line.

The submitter did not give a cause for this problem.

Part total time not reported.

**Beech; Model B90; King Air; Air-Conditioning
System Inoperative; ATA 2150**

After returning from a flight, the pilot reported the air-conditioner was inoperative.

A technician discovered the air-conditioner compressor motor ground wire had burned a hole at the point where it attached to a structural beam (P/N 50-410012-249). The hole in the beam was approximately .75 inch in diameter. Since the upper support for the landing gear drag brace is attached to the

beam, this failure may have caused a catastrophic accident. Apparently, the ground wire attachment bolt worked loose and the electrical arcing grounded through the beam.

The submitter suggested redesigning the air-conditioner ground to provide a positive electrical ground and security.

Part total time not reported.

**Beech; Model E-90; King Air; Smoke in the
Cabin; ATA 3320**

The pilot reported smoke filled the cabin after he leveled off at 14,500 feet. He decided to return to the departure airport; however, the smoke cleared before the landing.

It was apparent that the smoke originated from the area of the right window frame near seat number 6. During an investigation, the technician determined that the power supply (P/N PW-FLL-28) for a florescent lamp failed. The lamp resistor became very hot, burned, and melted the surrounding insulation.

Part total time not reported.

Beech; Model 99; Airliner; Fuel Leak; ATA 2810

The pilot reported fuel leaking from the vicinity of the right nacelle.

An inspection revealed numerous small leaks in the nacelle bladder fuel cell. The technician removed the defective fuel cell (P/N 99-380000-5) and discovered the cell hangers were still in place. He suspected normal wear and age caused the fuel leaks.

Part total time unknown.

Beech; Model B100; King Air; Defective Wing Flap Actuator; ATA 2752

During a scheduled inspection, an actuator for the left wing flap was found defective.

The outboard flap actuator (P/N 50-521223-3) drive piston (P/N 50-521195-10) was cracked in the area where the rod-end was fitted inside the piston. The crack was approximately 1.5 inches long and ran longitudinally or forward with respect to the installed position. The submitter speculated the crack was caused by an interference fit between the rod-end outside diameter and the drive piston inside diameter. When a new rod-end and drive piston were installed, it was necessary to use "emery cloth" on the rod-end threads to obtain a proper fit. It was suggested that all personnel consider these findings when inspecting and replacing these parts.

Part total time-6,243 hours.

Beech; Model B200; King Air; Seat Back Failure; ATA 2520

The flightcrew reported a passenger seat back failed during the takeoff roll.

An investigation disclosed that both of the seat back support adjuster brackets (P/N's 692-100AR-3RH and -3LH) were broken. This defect occurred on the number 6 passenger seat.

The submitter stated this was the third like occurrence he has experienced. He suggested

that this area be given close attention during scheduled inspection and maintenance.

Part total time-1,933 hours.

Beech; Model B300; King Air; Nose Gear Shimmy; ATA 3244

The flightcrew reported experiencing a severe shimmy during the previous two takeoffs.

The technician removed the nose gear tires (Goodyear P/N 301-393-353). He discovered a loose internal balance patch in one of the tires which caused a severe out-of-balance condition during takeoff speeds.

The submitter suggested inspecting the internal tire balance patch if vibration is reported.

Part total time-27 hours.

Beech; Model 400; Beechjet; Thrust Reverser Fastener Failure; ATA 7830

During a scheduled inspection, the technician discovered sheared thrust reverser rivets.

The defective fasteners were located in the thrust reverser outer fan duct flange forward support assembly (P/N 202-0048-1). This condition cannot be detected by visual inspection alone. It is necessary to physically move the support assembly to find sheared rivets. One should check these fasteners at every opportunity.

Part total time not reported.

Beech; Model 1900D; Airliner; Defective Nosewheel Centering Arm; ATA 3250

After a technician installed an overhauled nose gear actuating cylinder, an operational test revealed the nosewheel did not center properly.

Further examination of the cylinder (P/N 114-820022-17) centering arm attachment holes disclosed that all six holes were rotationally misaligned by approximately 4 degrees. The submitter stated this could only

have occurred during the manufacturing process. A visual inspection of the centering arm holes, prior to installation, gave no indication of a deviation in hole orientation.

Maintenance personnel should bear these findings in mind when nosewheel centering problems occur.

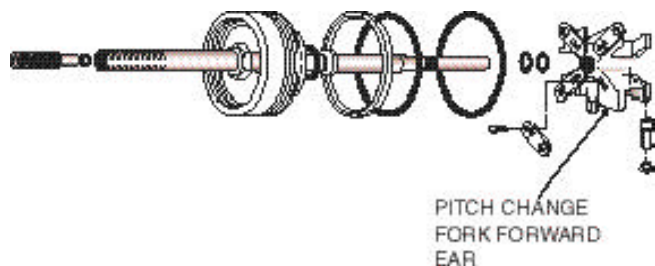
Part total time not reported.

Beech; Models 1900; Propeller Pitch-Change Fork Cracks; ATA 6120

Several similar reports concerning cracking of the propeller pitch-change fork prompted this article. Also, this defect was found on two Beech B200 aircraft which had a four-bladed propeller installed in accordance with Supplemental Type Certificate (STC) SA2698NM.

The propeller installed on these aircraft was a Hartzell HC-X4 series and used the same pitch-change fork (P/N 57D0495). All of the cracks occurred in the inboard radius of the pitch pin engagement slot of the forward ear of the pitch-change fork. (Refer to the following illustration.) The FAA Service Difficulty Program data base contains 55 entries of similar defects. Multiple cracks were noted on most of the reports. This problem may not be specific to the aircraft mentioned here. Cracks may occur with any installation using this pitch-change fork. Frequent and thorough inspections of the pitch-change forks should be accomplished until this problem is resolved.

Part total time not applicable.



CESSNA

Cessna; Model 140; Aileron Pulley Bracket; ATA 5720

After a preflight inspection, the pilot determined the aircraft was airworthy. However, approximately 2 minutes into the flight, the upper right-hand aileron pulley bracket (P/N 0411534-1) failed. He landed the aircraft safely using only the rudder for directional control.

The submitter attributed the failure to the aircraft's 53 years time in service. He stated: technicians should make additional, and more extensive, inspections on older aircraft to prevent this type of failure.

Part total time-3,657 hours.

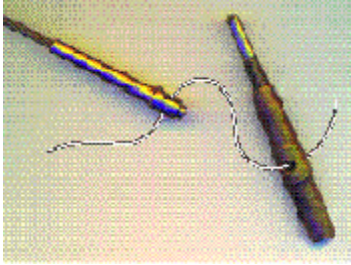
Cessna; Model 172H; Skyhawk; Defective Aileron Control System; ATA 2711

The pilot reported he had to hold the control yoke approximately 10 degrees to the left to maintain level flight.

The technician removed the plastic covers behind the instrument panel and attempted to adjust the aileron cable tension. He discovered a broken turnbuckle terminal end. The aileron cable connection was maintained by a single strand of .041-inch safety wire, and the cable tension was loose. (Refer to the following illustration.) It appeared that the terminal end had been broken for some time, and the safety wire had stretched approximately .375 inch.

The submitter recommended thoroughly inspecting all flight control turnbuckles during scheduled inspections, and when the control yoke changes position to maintain level flight.

Aircraft total time-3,489 hours.



**Cessna; Models 172RG, R182, and 210 Series;
Nose Landing Gear Failure; ATA 3230**

The FAA Aircraft Certification Office, ACE-118W, in Wichita, Kansas, submitted the following article.

The FAA continues to receive reports of nose landing gear collapse incidents. These incidents were attributed to failures of the nose gear actuator down-lock pins. The down-lock pins, which are press fit into the bearing end of the actuator, are retained by a roll pin. The down-lock pins have become loose, cracked, and (in some instances) broken at the roll pin retaining groove. In some cases, the broken pins extended slightly, and prevented the nose gear from fully locking in the “down” position.

Cessna issued Service Bulletin (SB) SEB95-20 which details inspection and replacement procedures for the pins. A newly-designed pin is offered by Cessna as a replacement part. They strongly recommend compliance with SEB95-20 as soon as possible to reduce and/or eliminate nose gear collapse incidents.

Part total time not applicable.

**Cessna; Model 172R; Skyhawk; Wing Flap;
ATA 5753**

During a scheduled inspection, the technician found the left wing flap trailing edge lower skin cracked.

The cracks appeared at each of eight rivets from the inboard end of the flap and extending 2 feet outboard. The technician speculated this

defect was caused by improperly rigged wing flap control cables. The proper flap cable tension is 30 + 10 pounds. He discovered the cable tension ranged from 10 to 50 pounds. This is a common defect that only occurs on the left flap. He installed a new assembly that was furnished by Cessna.

Part total time-96 hours.

**Cessna; Model 172R; Skyhawk; Wing Flap Well
Skin; ATA 5730**

During a routine inspection, the technician discovered the right wing inboard upper flap well skin cracked. The crack traveled along the inboard trailing edge near the wing root area and extended through a line of rivets.

The submitter indicated the sheet metal was not thick enough, and the rivets were spaced too far apart to bear the stress imposed on the trailing edge. He recommended that the manufacturer re-evaluate the thickness of the sheet metal and the spacing of the rivets in this area.

Part total time-665 hours.

**Cessna; Model 182S; Skylane; Exhaust Gas
Leakage; ATA 7800**

The FAA Aircraft Certification Office located in Wichita, Kansas, submitted the following article. The information is directed toward “Cessna single-engine airplanes equipped with Lycoming engines.”

Cessna has issued a Service Bulletin (SB) SB97-78-01 which recommends installation of Lycoming (P/N 77611) “blow proof” exhaust gaskets when replacement is necessary. The FAA recently issued Airworthiness Directive (AD) 98-01-14 applicable to Cessna Model 182S aircraft which requires replacement of both engine exhaust mufflers. Shortly after compliance with AD 98-01-14, it was reported that exhaust gasses were leaking into the aircraft cabin. The exhaust gas leak source was determined to originate from the exhaust gaskets and a loose muffler shroud.

It is recommended that a thorough inspection of the complete exhaust system be accomplished each time any work is performed on the engine exhaust system and that suspect exhaust gaskets be replaced with the Lycoming "blow proof" gaskets.

Part total time not applicable.

Cessna; Model 208B; Caravan; Fuel Vent System; ATA 2810

During a landing approach, the low fuel pressure warning light illuminated and could not be reset. The pilot made a safe landing.

An inspection revealed that both fuel tanks were under extreme vacuum pressure. Both wing upper skins were distorted and two ribs just inboard of wing station 214.3 were crushed. The technician found caked mud in both the left and right fuel vent lines.

The submitter suggested using a cover on the fuel tank vents to keep insects from plugging the vent lines. A complete preflight inspection is a must on all aircraft.

Aircraft total time-4,873 hours.

Cessna; Model 421; Golden Eagle; Lower Rudder Bearing Plate Installation; ATA 5540

The FAA received several reports of the lower rudder bearing retainer plate installed (riveted) upside down.

This installation allows the weight of the rudder to push the bearing out of the bearing plate. When the bearing is pushed out, the rudder interferes with the "close out" fairing on the top of the horizontal stabilizer. The aircraft maintenance records did not indicate that the bearing plate was ever replaced.

Part total time reported as-3,664 hours.

HAWKER SIDDELY

Hawker Siddely; Model HS-125-700A; Hydraulic System Leak; ATA 2900

While parking the aircraft after a flight, the technician noticed copious amounts of hydraulic fluid running from the rear fuselage area.

The technician discovered the fluid came from the aft equipment bay. When he cleaned the area and pressurized the hydraulic system, a fine spray of hydraulic fluid spewed from the left pylon area. After removing components to gain access to the area, he discovered that two stainless steel hydraulic lines were chafing against each other. One of the high pressure lines (3,000 PSI) had a pinhole through the wall thickness. Under pressure, the pinhole sprayed fluid into the aft equipment bay. After he removed the hydraulic lines, he discovered a fuel line had chafed through approximately half of the wall thickness. The aft equipment bay houses the auxiliary power unit and numerous electrical panels, relays, and contactors.

The submitter stated this condition created a very hazardous situation that could have resulted in a fire or an explosion. He urged all operators to inspect their aircraft for these conditions as soon as possible.

Aircraft total time-3,097 hours.

MOONEY

Mooney; Model M20J; Nose Landing Gear; ATA 3213

During a nose landing gear inspection, the technician discovered the steering truss bolt hole was elongated.

The elongation occurred where the overcenter link is bolted to the truss (P/N 54001-503). The manufacturer's specifications for allowable wear at this location are .375 to .379 inch. When the technician removed the part, the wear measured .392 inch. He replaced the

truss with a serviceable unit. This damage may be due to a lack of lubrication and an improperly torqued truss bolt.

The submitter recommended close inspections of this area during landing gear retraction tests.

Part total time-3,164 hours.

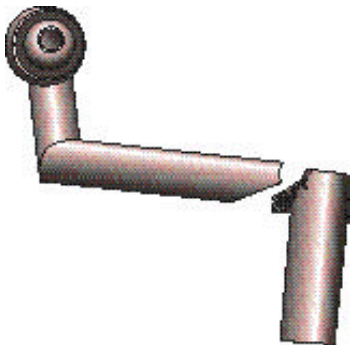
Mooney; Model M20J; Aileron Control Link; ATA 2710

During a preflight inspection, the pilot reported that the ailerons “felt funny.”

A followup investigation revealed that the right aileron traveled past the stop. The technician removed the belly pan to gain access to the flight control system and discovered the right aileron control link tube (P/N 730006-000) broken. (Refer to the following illustration.) The crack was located just outboard of the aileron bellcrank and adjacent to a weld.

The submitter stated he found this defect on several other like aircraft. The FAA issued Airworthiness Directive (AD) 98-24-11. The AD requires that these tubes be removed and inspected every 100 hours time in service until they are replaced with an updated aileron control link.

Part total time-2,687 hours.



Mooney; Model M20K; Nose Gear; ATA 3222

During an annual inspection, the technician discovered one of the lugs on the nose gear turn limit stop was broken, and the nose gear leg (P/N 540004-505) had one tube that was dented beyond limits. After removing the nose gear to replace the nose gear leg, he discovered the steering horn shaft (P/N 720095-017) was bent.

The submitter indicated this damage was caused by exceeding the nose gear steering travel limits. This damage may occur when ramp personnel use a tug to move the aircraft.

Part total time not reported.

Mooney; Model M20R; Ovation; Baffle Support Bracket; ATA 7112

During an annual inspection, the technician found a broken baffle support bracket (P/N 600282-503) under the engine’s front center section.

The technician replaced the baffle support bracket with a factory-supplied replacement part. After inspecting all like aircraft in the fleet, the technician discovered this bracket fails with regularity.

According to the submitter, the service life of the baffle support bracket averages 50 hours of operation. He suggested that the manufacturer redesign this part using more structurally substantial material.

Part total time-160 hours.

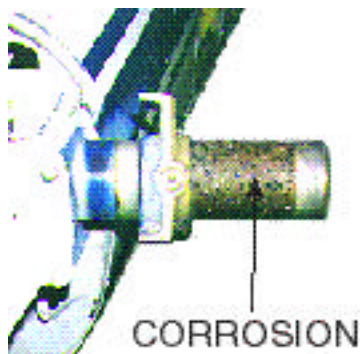
PIPER

Piper; Model PA 24-250; Comanche; Stabilator Corrosion; ATA 5520

While correcting discrepancies found during an annual inspection, the technician had to remove the stabilator torque tube assembly (P/N 20203-02).

Both the left and right stabilators were very difficult to remove from the torque tube. The inboard fitting (P/N 21420-02) mount bolts were removed from the stabilators and left on the torque tube while the stabilators were removed. After disassembling the torque tube, the technician found severe corrosion. The corrosion products inhibited the removal of the fitting. The location of the stabilator torque tube makes proper inspection very difficult which may account for the condition found in this case. (Refer to the following illustration.)

Part total time-3,607 hours.



Piper; Model PA 24-250; Comanche; Main Landing Gear Strut Damage; ATA 3213

During a scheduled inspection, the technician discovered the right main landing gear leaking. He disassembled the gear to install a new lower piston tube bearing and packing.

While attempting to install new parts, the bearing and packing became "stuck" approximately half way into the strut tube.

After checking further, the technician discovered that the chrome was worn almost through where the bearing and packing became stuck and the strut tube was bent. Due to this damage, it was impossible for the bearing and packing to pass through the strut tube. The submitter speculated hard landings may have caused this problem.

Part total time-3,607 hours.

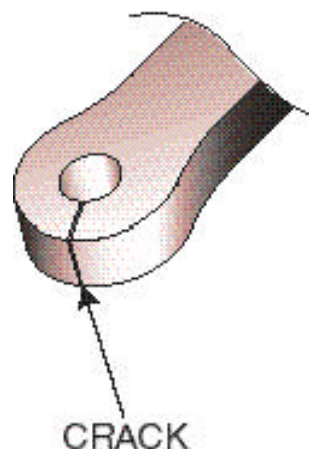
Piper; Model PA 30; Twin Comanche; Rudder Hinge Crack; ATA 2720

During the process of painting the aircraft, the painter stripped the paint from the vertical fin and discovered a crack in the upper rudder hinge.

The technician conducted an inspection and discovered more than one previously-accomplished major repair on this aircraft. (Refer to the following illustration.) The aircraft maintenance records did not document any of these repairs.

The submitter suggested that this crack was overlooked for some time because it was hidden by paint. Technicians should investigate suspicious areas, such as this, during scheduled inspections.

Part total time unknown.



Piper; Model PA31-325; Navajo; Elevator Spar Crack; ATA5521

While complying with Piper Service Bulletin (SB) 998A, a technician found a crack on the left elevator spar.

The crack was approximately 1.25 inches long and was located in a bend radius at the bottom outboard area of the spar. Cracks were also detected in ribs and stiffeners when the technician replaced the elevator spar.

The submitter stated, "We have found cracks every time we have complied with SB998A." He also suggested that all operators of like aircraft comply with SB 998A as soon as possible. Piper Service Bulletin 1008 also contains information regarding this subject.

Part total time-5,737 hours.

Piper; Model PA31-350; Chieftain; Heater Fuel Leak; ATA2140

The aircraft was brought in for maintenance with a report of fuel stains on the skin around the heater fuel drain tube.

An investigation disclosed that the heater fuel pressure regulator (P/N 756-650) was leaking at the parting surfaces of the regulator body. The submitter stated this was the third such discovery during the past six inspections. Technicians should check aircraft using this fuel pressure regulator for leakage at frequent intervals.

Part total time-547 hours.

Piper; Model PA32R-301; Saratoga; Defective Vertical Fin Attachment; ATA5510

While inspecting the dorsal area for cracks, the mounting holes for the vertical fin attachment bracket and rear bulkhead were found worn and elongated.

The mount bolt (P/N AN4-6A) nuts were "bottomed out" on the bolt shank allowing movement of the vertical fin. The submitter suggested adding a washer (P/N AN960-10) under the head of the mount bolts to stop the

nuts from "bottoming out." In this case, the "bottomed out" nuts may have been a result of wear and elongation on the attachment bracket and bulkhead. Therefore, a structural evaluation should have been conducted to ensure the design integrity is maintained. If it is necessary to add washers, either the bolt grip length is incorrect, the wrong bolt is installed, or the structure is not the appropriate thickness.

Part total time not reported.

Piper; Model PA32R-310T; Turbo Saratoga; Landing Gear Hydraulic System Failure; ATA3233

The pilot reported that when the landing gear was selected to the "up" position, the hydraulic pump ran continuously until it failed. The landing gear fell free to the "down-and-locked" position, and the pilot made a safe landing.

An investigation revealed that the nose landing gear actuator (P/N 455-987) was leaking internally and the left main gear actuator was leaking externally. This combination allowed air to be drawn into the hydraulic system and caused the pump to run continuously. The landing gear was held in transit until the hydraulic pump failed, and then it fell to the "down-and-locked" position.

The submitter suggested checking the landing gear actuators, as well as other hydraulic actuators, for internal and external leakage during maintenance and inspections.

Part total time-143 hours.

Piper; Model PA34-200; Seneca; Throttle Control Failure; ATA7603

The pilot reported the left engine would not respond to movement of the throttle.

During an investigation, the technician discovered a broken throttle control rod-end. The rod-end was removed and replaced with a "new style" rod-end. The "new style" rod-end supersedes the original "old style" rod-end. The "old style" rod-end is no longer available

from the manufacturer. The technician replaced all the “old style” rod-ends on both engines (i.e., throttle, mixture, propeller, and alternate air) with the “new style” rod-ends.

The submitter stated it is wise to check these rod-ends during inspections and maintenance.

Part total time not reported.

Piper; Model PA34-220T; Seneca; Difficult Dipstick Removal; ATA8550

According to this report, in order to check the engine oil quantity, it is necessary to rotate the dipstick 90 degrees and use a “hard pull.”

On both engines, the dipstick tube pulled loose from its attachment to the engine. A rubber tube and clamp arrangement hold the dipstick in place. The submitter stated, “There must be a better and more secure way to attach the tube and ensure that it will not pull out.”

The engine used in this aircraft is a Teledyne Continental Model TSIO-360. Other aircraft using this engine may be susceptible to the same anomaly.

Part total time not reported.

Piper; Model PA46-350P; Malibu Mirage; Turbocharger Air Duct Defect; ATA8120

During a scheduled inspection, the technician removed the engine turbocharger air duct to check the compressor.

The air duct (P/N 565-454) internal supporting wire came loose and protruded into the turbocharger air intake. The duct wire was resting approximately .5-inch from the compressor wheel. The duct and wire are normally secured by a clamp on the outside of the air inlet. Apparently, during a previous installation, the wire dislodged from the duct and found its way inside the turbocharger air inlet. This situation could have resulted in a

catastrophic event if the duct support wire had been ingested by the turbocharger compressor during a critical period of flight.

Part total time-1,472 hours.

HELICOPTERS

BELL

Bell; Model 204 and 205 Series; Power Turbine Governor Defect; ATA7320

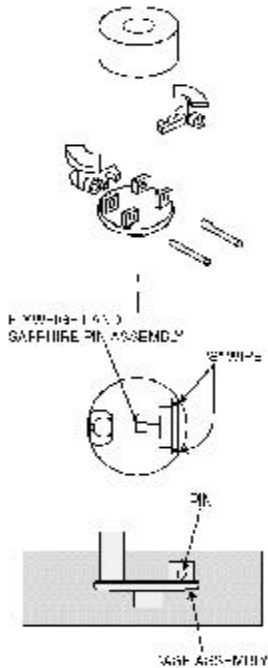
An FAA-certificated repair station submitted the following article concerning the power turbine governor (PTG), Model PTG-3, manufactured by Chandler Evans and installed on an Allied Signal Model T-53 engine.

While disassembling the PTG for overhaul, one of the two “S” safety wires was missing. The manufacturer’s technical data uses the term “S” wire to describe the safety device that secures the flyweight sapphire pin assemblies. (Refer to the following illustration.)

The “S” wire is installed through the hole at one end of the sapphire pin and then the pin is inserted through the prongs of both the flyweight assembly and the flyweight sapphire assembly. Once the pin is in place, an “S” wire is installed in the second, opposite pinhole. The missing “S” wire allowed the sapphire pin to migrate out far enough to contact the governor housing causing a circumferential groove in the housing. Maintenance records indicated the PTG had been removed twice to accommodate other maintenance. Also, the PTG was overhauled in July 1995. During that 46-month period of time, the PTG acquired 1,592 hours of operating time.

The submitter suggested that personnel pay close attention to detail when installing these units.

Part total time-2,991 hours.



Bell; Model 206BIII; JetRanger; Hardware Failure; ATA6710

The FAA Rotorcraft Standards Service in Fort Worth, Texas, submitted the following article.

During an unscheduled inspection, technicians discovered four cracked pitch link nuts (P/N MS35691-29 and -33). This finding prompted inspections of other like helicopters. The technicians found additional pitch link nuts with cracks and small surface discontinuities. Even with the required corrosion-prevention compound, all of the nuts displayed corrosion.

It was difficult to determine how the cracks started; however, a laboratory investigation concluded that overtightening during installation may have propagated the cracks. The submitter recommended

that all pitch link nuts and other hardware receive close attention during scheduled 100-hour inspections.

Part total time not applicable.

Bell; Model 212; Engine Oil Leak; ATA 7921

During a landing approach, the pilot noticed the engine oil pressure dropped, the oil pressure light illuminated, and the N1 temperature rose. He reduced the throttle to flight idle and heard a loud noise.

Even though the quantity sight glass did not display oil, the technician discovered copious amounts of engine oil on the engine and deck. The amount of oil made it evident that a severe leak had occurred. A further investigation disclosed that an oil line running under the engine had broken. The line connecting the fuel/oil heater to the oil cooler had bent and broken at a fitting. At the time of this report, the submitter had not determined the exact cause of this failure; however, the investigation is ongoing. One factor under consideration as the cause is "high oil pressure."

Part total time not reported.

EUROCOPTER

Eurocopter; Model BK117-A3; Main Rotor Transmission Bearing Failure; ATA6330

While checking the torque on the main rotor mast nut, the technician noticed excessive axial play in the mast assembly.

After the technician measured the play, he discovered it was .8 millimeter which is well beyond the acceptable limit of .57 millimeter. He removed the main rotor transmission (P/N 117-12005-01) and discovered a cracked ball bearing (P/N 117-12609-01). The crack ran through the bearing's outer race and total failure appeared to be imminent.

Part total time-5,731 hours.

Eurocopter; Model BK117-A3; Vacuum Pump Failure; ATA3700

During a flight, the cockpit and cabin filled with smoke and fumes. The pilot made a successful emergency landing and summoned maintenance personnel to the site.

An inspection revealed that the vacuum pump (P/N DOA-P101-JK) motor had seized which produced smoke and fumes. The vacuum pump, located on the right aft exhaust deck, is part of the medical-evacuation equipment installed in the helicopter. When the pump motor seized, the vacuum pump's circuit protection did not open the electrical circuit. The submitter did not give a cause for this failure.

Part total time not reported.

Eurocopter; Model EC-120B; Engine Failure; ATA 7322

When the engine failed during flight, the pilot made a safe emergency landing.

An investigation revealed that a piece of black rubber approximately 18 by 8 millimeters in size had lodged in the ejector pump orifice of the fuel system low pressure unit. This caused the high pressure fuel pump inside the fuel control unit to shut down and resulted in a complete loss of engine power. The submitter believes the rubber particle contamination occurred during manufacturing assembly. The current system design does not protect the low pressure ejector pump with a fuel filter.

The submitter suggested the manufacturer install an airframe-mounted fuel filter upstream of the low pressure unit.

Part total time not reported.

AMATEUR, EXPERIMENTAL, AND SPORT AIRCRAFT**AVID****Avid; Model Catalina; Erroneous Instrument Indications; ATA3424**

After the installation of a new turn coordinator (Mid Continent Instruments P/N 1394T100), the pilot noticed erroneous cockpit instrument indications.

The technical data furnished with the turn coordinator indicated it was manufactured to the requirements of Technical Standard Order (TSO) C3d. Whether the electrical power was on or off, the turn coordinator produced a very powerful magnetic field. A makeshift test using a hand-held standby compass indicated a compass needle deflection over 14 inches away from the turn coordinator.

The submitter stated erroneous instrument indications may occur if an instrument containing ferrous metal movable parts (e.g., electromagnetic coil dial indicators, sensitive electronic circuits, signal antenna cables, etc.) is mounted near the turn coordinator.

Part total time-0 hours.

SCHEMPP-HIRTH**Schempp-Hirth; Model 4DM; Nimbus; Security of Flight Control Hardware; ATA 2700**

The FAA Aircraft Certification Office, ACE-100, in Kansas City, Missouri provided the following information.

The subject of this article may affect many other types of gliders and powered aircraft. This aircraft was involved in a serious accident; however, the defects reported in this article did not cause the accident.

While conducting an accident investigation, the technician discovered the jamnuts on the flight control rod-ends not properly secured. The rod-ends are located between the control sticks under the pilot seats. This is a general safety issue, and all aviation personnel should be aware of the information contained in this article.

ACE-100 recommends special consideration be given to proper security of flight control rod-ends and jamnuts during the next scheduled airworthiness inspection. If any of the jamnuts are found loose, a determination should be made to ensure that the rod-end is threaded into the control rod the proper number of turns. The rod-end and jamnuts should then be properly installed and secured. The rod-ends should be checked at all locations in all of the flight control systems during scheduled inspections.

Part total time not applicable.

POWERPLANTS AND PROPELLERS

TELEDYNE CONTINENTAL

Teledyne Continental; Model A65; Piston Pin Plug Wear; ATA8520

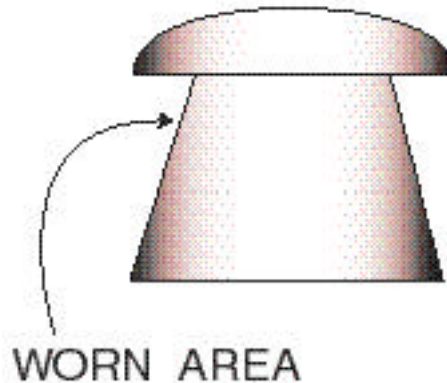
This engine was installed in a Piper Model J-3 aircraft. After a major overhaul, the technician found metal particles in the oil screen at 30-, 55-, and 75-hour intervals.

The technician removed the cylinders and discovered abnormal piston pin plug wear was the source of these metal particles. All of the piston pin plugs (P/N 25117) were worn beyond serviceable limits and the wear pattern formed a "taper." (Refer to the following illustration.) A piston pin plug from the

number 1 cylinder was worn .095 inch, and the remaining plugs were worn between .005 and .01 inch.

All of the piston pins and plugs were new at the time of overhaul, and the submitter could not determine a cause for this defect.

Part total time-75 hours.



ACCESSORIES

FIREWALL FORWARD ALUMINUM FUEL LINES AND FITTINGS

The FAA Aircraft Certification Office, ACE-118W, in Wichita, Kansas, submitted the following article.

Recently, the FAA became aware that a single-engine, Type Certificated aircraft experienced an in-flight fire.

Failure of the fuel fitting at the carburetor inlet caused this incident. The fitting failed due to metal fatigue (possibly induced by vibration) of the flexible fuel line attached to the aluminum fitting (P/N AN911-2D). ACE-118W is reviewing the Type Design

Data applicable to the aircraft involved in this incident and is considering future action.

ACE-118W recommends that, in the interim, aluminum fuel lines and fittings be closely inspected at every opportunity.

Part total time not applicable.

AIRNOTES

SUBSCRIPTION FORM

Many of our readers voiced their concern when, due to a budget reduction, it was necessary to stop printing and distributing paper copies free of charge.

The Government Printing Office (GPO) agreed to print and distribute the Alerts. However, there will be a 1-year subscription charge for this service. The charge will be \$25 per year for domestic mailings and \$31.25 per year for foreign mailings.

The mailing list for the Alerts is current, and we sent a subscription form to all past recipients. However, if you did not receive a subscription form, we have included one in this publication.

IF YOU WANT TO CONTACT US

If you want to contact the staff of this publication we welcome your comments, suggestions, and questions. You may use any of the following means of communication to submit reports concerning aviation-related occurrences.

Editors: Phil Lomax (405) 954-6487
and/or

Ed Galasso (405) 954-6471

FAX: (405) 954-4570 or (405) 954-4748

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FAA

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You can access current and back issues of this publication from the internet at:

<http://www.mmac.jccbi.gov/alerts>

This web site also has view, search, E-Mail, and M or D submit functions.

The "Fedworld" web site is:

<http://www.fedworld.gov/pub/faa-asi/faa-asi.htm>

The "Fedworld" web site has approximately 5 years of back issues listed. The files are titled using eight characters. The first three characters are ALT. The second three characters indicate the month (Jan, Feb, etc.). The last two characters indicate the year (98, 99, etc.). The more recent files are in Adobe Acrobat (PDF) format and can be viewed and downloaded. To download individual monthly files, place the mouse pointer at the desired file, and click the right mouse button. This will produce a drop-down menu. Select "save target as" from the drop-down menu, and click the left mouse button. Select a location for the downloaded files to reside. You can print the downloaded file(s). **NOTE:** The Service Difficulty Report (SDR) files are at the end of the ALT files.

****ALERTS E-MAIL ADDRESS UPDATE**

Due to a technological change, the E-Mail address for Phil Lomax (the editor of this publication) has changed. Listed below are the old and the new E-Mail addresses. The old E-Mail address is no longer active; therefore, use the new E-Mail address. If all else fails, you may call Phil Lomax at (405) 954-6487.

OLD E-Mail address:

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NEW E-Mail address:

<9-amc-ga-alerts@mmacmail.jccbi.gov>

AIRWORTHINESS DIRECTIVES (AD's) ISSUED IN AUGUST 1999

99-14-06; MT-Propeller Entwicklung;
Propeller: MTV-9-B-C and MTV-3-B-C

99-16-03; Learjet; 23, 24, 25, 28, 29, 31, 55, and
60 Series

99-16-06; Piper; The New; PA-46-350P

99-16-09; Bell; Rotorcraft: 230

99-16-12; Raytheon (Beech); 1900D

99-16-13; MD Helicopters; Rotorcraft: MD-900

99-17-01; Pilatus; PC-12 and PC-12/45

99-17-03; Bell; Rotorcraft: 204B, 205A, and
205A-1

99-17-07; Eurocopter Deutschland; Rotorcraft:
MBB-BK 117 A-1, A-3, A-4, B-1, B-2, and C-1

99-17-17; Robinson; Rotorcraft: R44

99-17-21; Eurocopter Deutschland; Rotorcraft:
BO-105CB-5 and BO-105CBS-5

99-17-08; Pilatus; PC-12 and PC-12/45

99-17-10; Schweizer; Rotorcraft: 269A,
269A-1, 269B, 269C, 269C-1, and 269D

99-17-18; MD Helicopters; Rotorcraft: 600N

99-17-19; Bell; Rotorcraft: 206L, 206L-1,
206L-3, and 206L-4

99-18-02; Bell; Rotorcraft: 205A-1 and 205B

99-18-13; DeHavilland; DHC-6-1, DHC-6-100,
DHC-6-200, and DHC-6-300

99-18-14; Cessna; 172R

99-18-15; Raytheon (Beech); C90A, B200,
B300, and 1900D

99-19-22; Eurocopter Deutschland; Rotorcraft:
BO-105A, BO-105C, BO-105 C-2, BO-105 CB-2,
BO-105 CB-4, BO-105S, BO-105 CS-2, BO-105
CBS-2, BO-105 CBS-4, and BO-105LS A-1

99-19-23; Eurocopter Deutschland; Rotorcraft:
EC 120B

AVIATION SERVICE DIFFICULTY REPORTS

The following are abbreviated reports submitted between August 21, 1999, and September 20, 1999, which have been entered into the FAA Service Difficulty Reporting (SDR) System data base. This is not an all inclusive listing of Service Difficulty Reports. The full SDR reports can be found on the internet at: <<http://www.fedworld.gov/pub/faa-asi/faa-asi.htm>>. This internet address takes you to the FAA ASI Library and the SDR reports are listed by weekly entries. This data base is maintained by the FAA, Regulatory Support Division, Aviation Data Systems Branch, AFS-620 located in Oklahoma City, Oklahoma. The mailing address is:

FAA

Aviation Data Systems Branch, AFS-620

PO Box 25082

Oklahoma City, OK 73125

These reports contain raw data that has not been edited. If you require further detail please contact AFS-620 at the address above.

Service Difficulty Report Data

This report is sorted by aircraft make and model then engine make and model.

This report derives from unverified information submitted by the aviation community without FAA review for accuracy.

ACFT MAKE ACFT MODEL REMARKS	ENG MAKE ENG MODEL	COMP MAKE COMP MODEL	PART NAME PART NUMBER	PART CONDITION PART LOCATION	DIFF-DATE FAA REPORT NO.	T TIME TSO
			SHAFT ASSY 222044006109	CORRODED TRANSMISSION	09/02/1999 1999091000030	
NEW PART DISASSEMBLED. FOUND CORRODED ON GEAR AND SHAFT MISSING CORK AT ONE END.						
	ALLSN 250C30P		BEARING 230595681	CORRODED GEARBOX	08/31/1999 1999091700429	
RECEIVING INSPECTION PER BOOK FAX 99 AMC043 REVEALED CORROSION ON BEARING.						
BEECH 58	CONT IO520C		GEARBOX C160401	DAMAGED TE FLAP	08/24/1999 1999091700147	
(AUS) FLAP GEARBOX DRIVE TEETH SHEARED.						
BELL 206L1	ALLSN 250C28B	23033185	NOZZLE 23008054	CRACKED NR 1	08/31/1999 1999091700425	614
ENGINE REMOVED DUE TO CRACKED EXHAUST COLLECTOR. UPON INSPECTION OF TURBINE PARTS NOTED THE FOLLOWING: CRACKED VANES ON NR 1 NOZZLE. INSTALLED NEW PART.						
BELL 212		212040001141	SPIDER 204040785003	CRACKED TRANSMISSION	09/01/1999 1999091700424	5822
BELL 212 TRANSMISSION WAS REMOVED FOR FERROUS METAL GENERATION. INITIAL TEARDOWN INSPECTION REVEALED LOWER SPIDER CRACKED. THIS CONDITION WAS PREVIOUSLY EMPHASIZED BY ASB 212-91-66A REQUIRING A SPECIAL NDT MAGNAFLUX INSPECTION. ASB 212-91-66 REVISION A WAS PREVIOUSLY COMPLIED WITH ON THIS GEAR 2313.1 HOURS EARLIER WITH NO EVIDENCE OF DEFECTS NOTED.						
BELL 214ST			COMPUTER 214175421101	MALFUNCTIONED AIR DATA	08/25/1999 1999090300344	
AIR DATA COMPUTER WILL NOT COUNT DOWN.						
BELL 407			BRUSHES 206062200113	WORN STARTER/GEN	08/23/1999 1999090300356	1518
BRUSHES FAILED 300 HOUR INSPECTION. INSPECTED BY ACCESSORY SHOP AND FOUND BRUSHES WERE EXCESSIVELY						

BELL 407	BLADE 407015001117	DAMAGED MAIN ROTOR	08/25/1999 1999090300343	2344
LOWER POCKET WEIGHT CORROSION, VOID AT STATION 197 ON LOWER SURFACE, HOLE AT STATION 197 ON LOWER. SERIAL NUMBERS REMOVED ARE A285, A341 AND A263. REPLACEMENT PART SERIAL NUMBERS ARE A754, A650 AND A596. REFERENCE: DMR NR 686294.				
BELL 407	CROSSTUBE 407050202101	CORRODED MLG	08/26/1999 1999090300345	
CROSSTUBE CORRODED DUE TO INADEQUATE DISSIMILAR METAL PROTECTION FROM T-BOLT CLAMP. REFERENCE: DMR NR 686353.				
BELL 407	CROSSTUBE 407050202101	CORRODED MLG	08/26/1999 1999090300346	
CROSSTUBE CORRODED DUE TO INADEQUATE DISSIMILAR METAL PROTECTION FROM T-BOLT CLAMP. REFERENCE: DMR NR 686354.				
BELL 407	CROSSTUBE 407050201101	CORRODED MLG	08/26/1999 1999090300347	
CROSSTUBE CORRODED DUE TO INADEQUATE DISSIMILAR METAL PROTECTION FROM T-BOLT CLAMP. REFERENCE: DMR NR 686353.				
BELL 407	BLADE 407015001117	BLISTERED MAIN ROTOR	08/27/1999 1999090300348	3029
SMALL VOID ON UNDERSIDE OF BLADE NEAR TIP. BLISTER NOTED ON DAILY INSPECTION. REFERENCE: DMR NR				
BELL 407	INDICATOR 5040045904	MALFUNCTIONED COCKPIT	08/31/1999 1999091700430	
INDICATOR SHOWS TILT IN LEVEL FLIGHT. REFERENCE: DMR NR 686221.				
BELL 407	MAIN CASE 407040050101	WORN GEARBOX	08/31/1999 1999091700431	2329
INPUT BEARING LINER WORN DUE TO APPLICATION OF SEALANT TO INPUT FLANGE AREA CAUSING IMPROPER PINCH FIT ON TRIPLEX BEARING. REFERENCE: DMR NR 686308.				
BELL 407	FREEWHEEL 406040500123	LEAKING MAIN ROTOR	08/31/1999 1999091700432	1020
LEAKING FORWARD SEAL. REFERENCE: DMR NR 686304.				
BELL 407	BRUSHES 206062200113	WORN STARTER/GENERAT	09/02/1999 1999091700433	1766
STARTER/GENERATOR FAILED 300-HOUR INSPECTION.				
BELL 407	BRUSHES 206062200113	WORN STARTER/GENERAT	09/02/1999 1999091700434	1566
STARTER/GENERATOR FAILED 300-HOUR INSPECTION. BRUSHES HAD LESS THAN 1/4 LIFE.				
BELL 407	GENERATOR 206062200113	FAILED STARTER/GENERAT	09/02/1999 1999091700435	1150
GENERATOR DROPS OFF-LINE.				
BELL 430	SHAFT 222044006109	CORRODED TRANSMISSION	08/28/1999 1999090300767	30
MAIN DRIVE SHAFT 12-MONTH INSPECTION AND REPACK. DISASSEMBLED, FOUND RUSTED AND PITTED ON COUPLINGS AND GEARS.				
BELL 430	SHAFT 222044006109	CORRODED TRANSMISSION	08/28/1999 1999090300768	30
MAIN DRIVE SHAFT DUE 12-MONTH INSPECTION AND REPACK. DISASSEMBLED, INSPECTED. FOUND CORRODED ON COUPLINGS AND GEARS.				
BOLKMS BO105S	ALLSN 250C20B 6898735	NOZZLE 23062753	CRACKED NR 1 1999091700426	403
ENGINE REMOVED DUE TO 3,500 HOUR OVERHAUL. UPON INSPECTION OF TURBINE PARTS NOTED THE FOLLOWING: CRACKED VANES ON NR 1 NOZZLE. INSTALLED NEW PART.				
BOLKMS BO105S	ALLSN 250C20B 6898735	NOZZLE SHIELD 23062750	CRACKED NR 1 1999091700427	584
ENGINE REMOVED DUE TO N1 DRAG. UPON INSPECTION OF TURBINE PARTS NOTED THE FOLLOWING: CRACKED DOME ON NR 1 NOZZLE SHIELD. INSTALLED NEW PART.				
BOLKMS BO105S	ALLSN 250C20B 6898735	NOZZLE SHIELD 23062750	CRACKED NR 1 1999091700428	663
ENGINE REMOVED DUE TO 1,750 HOUR INSPECTION. UPON INSPECTION OF TURBINE PARTS NOTED THE FOLLOWING: CRACKED DOME ON NR1 NOZZLE SHIELD. INSTALLED NEW PART.				
CESSNA 172R	DUKES	BOOST PUMP 5100001	MAKING METAL FUEL SYSTEM 1999090300231	959
RECENTLY, THE AIRCRAFT AND ENGINE MANUFACTURER ISSUED A PROCEDURE CHANGE REQUIRING THE BOOST PUMP REMAIN ON FOR TAKEOFF AND LANDING. SINCE THE INCORPORATION OF THIS PROCEDURE, THIS FLEET OF 172R'S HAS BEGUN TO HAVE VERY SMALL BRASS-LIKE PARTICLES ACCUMULATE IN THE FUEL STRAINER. INITIAL REPORTS ON THE SIZE INDICATE THAT SOME OF THE PARTICLES ARE SMALLER THAN THE GASCOLATOR FILTER AND THE INLET SCREEN TO THE FUEL SERVO, POSSIBLY AS SMALL AS 15 MICRON. WHEN THESE PUMPS FAIL THE SERVO AND THE FUEL MANIFOLD ARE REPLACED AND THE SYSTEM IS FLUSHED.				

CESSNA 172R	LYC IO360L2A	FLOW DIVIDER	MALFUNCTIONED ENGINE FUEL	08/24/1999 1999090300232	1613
THE STUDENT PILOT REPORTED A ROUGH ENGINE WHEN TAKEOFF WAS ATTEMPTED. THE FLOW DIVIDER AND FUEL SERVO WERE BOTH CHANGED.					
CESSNA 172R	LYC IO360L2A	FUEL SERVO	MALFUNCTIONED ENGINE	08/24/1999 1999090300233	1613
THE STUDENT PILOT REPORTED A ROUGH ENGINE WHEN TAKEOFF WAS ATTEMPTED. THE FLOW DIVIDER AND FUEL SERVO WERE BOTH CHANGED.					
SNIAS AS350B2		GENERATOR 150SG122Q	MALFUNCTIONED STARTER/GEN	08/25/1999 1999090300349	1152
GENERATOR ARCING AND SLOW TURN. REFERENCE: RMA NR R021037.					
SNIAS AS350B2		COUPLING 350A35105901	CRACKED ENG/TRANSMISSION	08/25/1999 1999090300350	
COUPLING CRACKED. REFERENCE: RMA NR R020829.					
SNIAS AS350B2		BEARING 350A33214501	WORN PITCH CONTROL	08/25/1999 1999090300351	
PLAY IN BEARINGS. REFERENCE: RMA NR R020609.					
SNIAS AS350B2		BEARING 350A33214501	WORN PITCH CONTROL	08/25/1999 1999090300352	
WORN BEARINGS. SERIAL NUMBERS REMOVED ARE 2873 AND 2240. REFERENCE: RMA NR R020608.					
SNIAS AS350B2		THRUST 704A33633109	WORN MAIN ROTOR	08/25/1999 1999090300353	464
BEARINGS WORN. REFERENCE: RMA NR R021033.					
SNIAS AS350B2		STOP ASSY 704A3363310951	WORN MAIN ROTOR	08/25/1999 1999090300354	1744
STOP ASSEMBLY WORN. SERIAL NUMBERS REMOVED ARE 12494 AND 12563. REFERENCE: RMA NR R021033.					
SNIAS AS350B2		LIGHT 704A46814049	FAILED FUSELAGE	08/25/1999 1999090300355	
NR 1 SIDE LIGHT SYSTEM WILL NOT COME ON. REFERENCE: RMA NR R021136.					
SNIAS AS350B2		EVAPORATOR 6AS35039	DAMAGED FORWARD	08/31/1999 1999091700436	
FAN AND SHAFT SEPARATED. FAN NOT BEING DRIVEN. REFERENCE: RMA NR R021215.					

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1. A/C Reg. No.		H			
2. AIRCRAFT	MANUFACTURER	MODEL/SERIES	SERIAL NUMBER		
3. POWERPLANT					
4. PROPELLER					
5. SPECIFIC PART (of component) CAUSING TROUBLE					
Part Name	MFG. Model or Part No.	Serial No.	Part Defect Location		
6. APPLIANCE COMPONENT (Name of first installed part)					
Comp/Model Name	Manufacturer	Model or Part No.	Serial Number		
Part ID	Part ID	Part Condition	T. Date Sub.	Optional Information: Check a box below, if this report is related to an aircraft: <input type="checkbox"/> Accident; Date _____ <input type="checkbox"/> Incident; Date _____	

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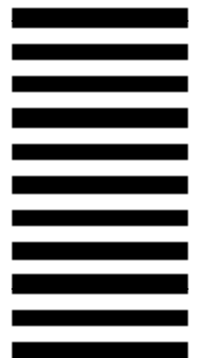
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